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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,869

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Theodoor M. Slaghek

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EXAMINER

CALANDRA, ANTHONY J

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,869	Applicant(s) SLAGHEK ET AL.	
	Examiner ANTHONY J. CALANDRA	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7,10,11 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,10,11 and 14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Detailed Office Action

The communication dated 12/29/2009 has been entered and fully considered.

Claims 1 and 18 have been amended. Claims 6, 8, 9, and 12-13 are canceled. Claim 19 is new. Claims 1-5, 7, 10, 11, 14-19 are currently pending.

Response to Arguments

Applicant argues hindsight reconstruction.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant argues that ANDERS teaches a longer treatment 24 hours) while the instant claims require a treatment time of 5 minutes to 16 hrs. Applicant argues that ANDERS fails to indicate that a time of 5 minutes to 16 hrs would be sufficient to obtain paper making fibers.

ANDERS teaches that 24 hrs is required to make a fully white bleached fiber (perfect white [pg. 1 line 37]. The person of ordinary skill in the art would expect that by treating the fiber for less time the fiber produced would be less white. The applicant claims (and specification) do not state the whiteness of the fiber. Therefore when treating for 5 minutes of

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the instant claim the fiber is less bleached as compared to a fiber which has been treated for 16 hrs. The balancing out of whiteness and time bleached is a clear result effective variable that can be optimized through routine experimentation.

The person of ordinary skill in the art may be motivated to perform a shorter treatment time because the retention time of the equipment needed to perform the bleaching is smaller and therefore the equipment is less costly.

Applicant argues that ANDERS discloses cow hair in the example and not pig hair.

ANDERS states that the invention is specifically towards [cows and pigs hair pg. 1 line 12].

Applicant states that NISHINO has nothing to do with animal hair and that the examiners quoted lines do not discuss animal hair.

The examiner disagrees. For reference the examiner has quoted the column 1 lines 20-25 below and column 8 lines 64-65.

Column 1

 The term "a fiber material" used herein includes fiber
 masses, fine fibrous particles, slivers, tows, yarns, webs,
 tapes, sheets (woven, knitted and nonwoven fabrics), and
 shaped articles comprising at least one type of natural
 organic and inorganic fibers, and wood and non-wood pulps. 25
 (65) Description of the Invention

Column 8

 fibers, and protein fibers including silk fibers and animal hair
 or fibers such as wool fibers.
 (65) Description of the Invention

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Applicant argues that one skilled in the art would not look to combine ANDERS with NISHINO.

NISHINO states that its process is applicable to a wide range of fibers including wood and non-wood fibers and animal fibers. The person of ordinary skill in the art would be motivated by the lower treatment times required as compared to the process of ANDERS. The person of ordinary skill in the art would also be motivated by preventing the decomposition of peroxide [column 1 lines 43-55] which means less chemical usage and therefore cost savings.

Applicant argues that the person of ordinary skill in the art would not look to use pig hair for of ANDERS/NISHINO with the animal hair containing product of AKITARO. The applicant argues that wool is different in thickness and stiffness than pig hair and therefore the person of ordinary skill in the art would not look to the substitution of one animal hair type to another.

The examiner notes that claim 18 does not require any specific hair type (only in dependent claim 19). The examiner also notes that it is well known in the paper art that fibers of different sizes and thicknesses can be used in papermaking as evidenced by SMOOK [pg. 19 Table 2-4]. Finally AKITARO discloses the genus of animal hair wool is only one specific embodiment thereof. The teachings of AKITARO are therefore not limited to wool.

Claim Rejections - 35 USC § 103

1. Claims 1, 4-5, 7, 11, and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 1,331,609 ANDERS, hereinafter ANDERS, in view of Japanese Publication

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JP 3-174041 AKITARO et al., hereinafter AKITARO and U.S. Patent 6,120,556 NISHINO, hereinafter NISHINO, or in the alternate, AKITARO in view of ANDERS and NISHINO.

Examiner shall refer to the patent abstract of the Japanese Publication from esp@cenet.

As for claims 1 and 7, ANDERS discloses a process for bleaching animal hair to a uniform shade [column 1 lines 9-15].

ANDERS discloses that cow and pig hair can be treating hair in an oxidizing solution which comprises hydrogen peroxide (*subjecting mammalian hair to an oxidation treatment in which the hair is contacted with a solution, which comprises a bleaching agent* [lines 75-80]).

ANDERS discloses that the hair is then washed in a bath comprising acetic acid or soap; thereby the hair is separated from the oxidizing solution (*separating the oxidized hair from the solution* [lines 80-86]).

It is the examiner's position that once the hair is removed from the washing solution it will begin to dry. Drying is an obvious process that occurs when an object is removed from a water source and left in air. Additionally, ANDERS discloses that the hair may then treated with formaldehyde. Formaldehyde is a volatile substance and therefore acts to dry the hair (*drying the separated hair* [pg. 2 lines 1-5])

The examiner finds the person of ordinary skill in the art to be a chemist or a chemical engineer (Graham factor 3). A chemist or a chemical engineer would instantly recognize that time and the amount of a reaction that has occurred are related. In bleaching or oxidizing at Time=0 it is known that no reaction has occurred. At some point in time in the future, Time=comp, the bleaching/oxidation reaction will proceed to completion. Between T=0 and

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T=comp the amount of reaction that has occurred will increase. At the time of the invention it would have been obvious to optimize the time of reaction to the person of ordinary skill in the art to balance the amount of reaction that will occur with the cost of equipment of bleaching (longer time = larger equipment necessary and thus higher costs). The person of ordinary skill in the art would expect at lower time for less oxidation to occur and therefore be of lower brightness.

In ANDERS the hair after treatment is perfect white [pg. 1 line 37] after 24 hrs. It would be expected that the fibers would be somewhat less white after a treatment 5 minutes - 16 hrs. In contrast the applicant's specification does not state how white the animal hair is made. The person on ordinary skill in the art further has other parameters which could possibly optimized such as temperature (increasing temperature increases reaction rate and thus decreases time) or increasing peroxide concentration (increasing peroxide concentration increases the amount of reaction occurring and hence would decrease time). Such optimizations are known to the person of ordinary skill in the art by elementary kinetic theory.

In the alternate, NISHINO teaches a bleaching treatment of cellulose fibers or animal hair [pg. 5 column 2 lines 64-65] for paper making pulps [column 1 lines 20-35]. NISHINO discloses an alkaline process ranging from a pH of 9-11 [column 10 lines 20] using peroxide [column 10 line 5]. NISHINO discloses the treatment time of 15-180 minutes [column 10 line 19]. At the time of the invention it would have been obvious to bleach the animal fibers of ANDERS as per the method of NISHINO. The person of ordinary skill in the art would be motivated by the lower treatment times required as compared to the process of ANDERS. The person of ordinary skill in the art would also be motivated by preventing the decomposition of peroxide [column 1 lines 43-55].

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ANDERS does not disclose a use for the animal fibers after they have been bleached.

AKITARO discloses that animal fibers can be cut to 3-10 mm in length which overlaps with the instant claimed range (*subjecting the dried hair to a treatment in which the hair is formed into a particulate material having an average particle size in the range of from 0.5 to 4 mm* [abstract]).

The animal hair fibers are subsequently added to cellulose pulp and then formed into paper.

At the time of the invention it would be obvious to a person of ordinary skill in the art to use the bleached animal fibers of ANDERS in the paper product making process of AKITARO. It is *prima facie* obvious to apply a known technique to a known product ready for improvement to yield predictable results. In the instant case it would have been obvious to improve a known product such as bleached animal fibers by incorporating them into a value added product such as paper. A person of ordinary skill in the art would expect the animal fibers to work in the process of AKITARO whether they were bleached or not bleached.

In the alternative, it would have been obvious to bleach the animal fibers used in the paper of AKITARO by the process of ANDERS/NISHINO. A person of ordinary skill in the art would be motivated to do so to have fibers which are whiter and have a higher brightness. Whiteness and brightness are both desirable properties of paper. It is *prima facie* obvious to use known techniques to improve similar products in the same way. In the instant case animal fibers would be improved by bleaching them. A person of ordinary skill in the art would expect the fibers of AKITARO to be bleached.

As for claims 4 and 5, ANDERS discloses hydrogen peroxide, perborates, and percarbonates [lines 97-107].

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As for claim 11, ANDERS discloses that the hair can first be washed prior to treatment [lines 57-60].

As for claim 14, hairs are fibers and therefore the particulate matter of hairs also comprises fibers. Additionally once mixed with cellulose pulp said cellulose are also fibers.

As for claims 15-17, the combination of ANDERS/NISHINO and AKITARO forms a pulp product and a paper product that is substantially the same as the instant claim or would be an obvious variant thereof. Paperboard is well known in the art as a thicker paper sheet; at the time of the invention it would have been obvious to a person of ordinary skill in the art to optimize paper thickness to obtain a paperboard.

As for claim 18 and 19, ANDERS/AKITARO/NISHINO, teach the product as per above. AKITARO further teaches that teaches 85:15-10:90 animal fibers to cellulose fiber, therefore AKITARO teaches the overlapping range of 10%-85%. AKITARO further teaches the paper product with 20% of animal hair fibers (wool) and 80% cellulosic fibers (hemp).

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(表C)

wool hair

hemp type fibers

組成	実施例2	比較例2
羊毛	20部	0
マニラ麻	80部	100部
湿潤強度向上剤	0.6部	0.6部
重量(g/m ²)	21.9	21.0
厚さ(mm)	0.061	0.048
密度(g/cc)	0.359	0.467
引張強度(縦)	1.78	1.94
引張強度(横)	0.50	0.54
伸び(縦)%	21.7	19.5
伸び(横)%	3.1	5.5
湿潤強度(縦)	0.60	0.68

なお、引張強度及び湿潤強度はkg/1.5mm幅で測定したものである。

2. Claims 2, 3, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 1,331,609 ANDERS, hereinafter ANDERS Japanese Publication JP 3-174041 AKITARO et al and if necessary, U.S. Patent 6,120,556 NISHINO, hereinafter NISHINO as applied to claim 1 above, and further in view of Handbook for Pulp and Paper Technologists by SMOOK, hereinafter SMOOK.

As for claim 10, AKITARO discloses that the animal fibers should be 3-10 mm in length and that said fibers are mixed with cellulose. SMOOK discloses that prior to papermaking pulp can be subjected to refining which alters the fibers and always shortens them to a certain extent [pg. 197 column 2]. At the time of the invention it would have been *prima facie* obvious to refine the animal and cellulose fibers prior to paper making. A person of ordinary skill in the art

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would be motivated to do so to obtain optimum strength development and control stock freeness [pg. 205 column 1].

As for claims 2 and 3, AKITARO discloses that the fibers can be 3-10 mm in length. The endpoint of 3 mm of the range is the same endpoint of instant claim 2. As for instant claim 3, the prior art range is exclusive but close to the instant claim range. It is the examiner's position that the refining process of SMOOK will further serve to cut the fibers and cause said fibers to have lengths less than 3mm. In the alternative, the claimed ranges are close enough that one skilled in the art would have expected them to have the same properties and therefore a *prima facie* case of obviousness would exist absent evidence of unexpected results.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571) 270-5124. The examiner can normally be reached on Monday through Thursday, 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art Unit
1791

/Anthony J Calandra/
Examiner, Art Unit 1791